

TERMINATION STRUCTURE OF DMOS DEVICE AND METHOD OF FORMING THE SAME

ABSTRACT OF THE DISCLOSURE

Embodiments of the invention provide a termination structure of DMOS device and a method of forming the same. In forming the termination structure, a silicon substrate with an epitaxial layer formed thereon is provided. A body region defined by doping the epitaxial layer is then selectively etched to form a plurality of DMOS trenches therein. Thereafter, a gate oxide layer is formed over exposed surfaces in the body region and a termination oxide layer is formed to encircle the body region. Afterward, a polysilicon layer is deposited over all the exposed surfaces, and then selectively etched to form a plurality of poly gates in the DMOS trenches and a polysilicon plate having an extending portion toward the body region over the termination oxide layer. By using the termination polysilicon layer as an implantation mask, sources are formed in the body region. Afterward, an isolation layer and a source metal contact layer are deposited over the structure, in which the isolation layer is utilized to protect the polysilicon gates, and also the source metal contact layer is utilized to ground both the body region and the polysilicon plate.

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